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IDAHO
DEPARTMENT OF FISH AND GAME

Jerry M. Conley, Director

FEDERAL AID IN FISH RESTORATION

Job Performance Report

Project F-71-R-13

REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS

Job No. 2-a.	Region 2 Mountain Lakes Investigations
Job No. 2-b.	Region 2 Lowland Lakes and Reservoirs Investigations
Job No. 2-c.	Region 2 Rivers and Streams Investigations
Job No. 2-d.	Region 2 Technical Guidance

By

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December 1989

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JOB PERFORMANCE REPORT

State of: Idaho Project **Name: REGIONAL FISHERY MANAGEMENT INVESTIGATIONS**

No.: F-71-R-13

Subproject No.: 2-a **Title: Region 2 Mountain Lakes Investigations**

Period Covered: July 1, 1988 to June 30, 1989

ABSTRACT

Basic lake survey information regarding species and size composition, spawning potential, and relative angler use was obtained on nine lakes within Region 2 during 1988. Two of the lakes were found to be too shallow to support fish, four supported naturally reproducing brook trout populations, and the other three were stocked periodically with cutthroat or rainbow trout fry.

Conservation officers contacted anglers at ten different lakes in Region 2 during 1988. The 102 anglers interviewed had fished 227 hours to catch 140 cutthroat trout and 24 rainbow trout. The overall catch rate was 0.72 trout per hour.

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OBJECTIVES

1. To evaluate the success of the mountain lake stocking program in Region 2.

2. To monitor angler success and relative effort within selected lakes in Region 2.

3. To collect data on spawning potential, species composition, fish conditions, and relative fish density within selected lakes in Region 2.

RECOMMENDATIONS

1. Basic data collection as described in the objectives should be continued.

2. Current stocking regimes should be maintained in Oregon Butte, Center Creek, and Lake Creek lakes.

3. Stocking of rainbow and cutthroat trout in Crystal Lake (Buffalo Hump area) and Coolwater Lake (Lochsa) should be terminated because of naturally occurring brook trout populations.

4. Stocking of Fire Lake (Lochsa) should be terminated because of shallowness and turbidity.

5. Flea Lake (Lochsa) should not be stocked because it is too shallow and turbid.

TECHNIQUES USED

Department personnel-surveyed nine different mountain lakes within Region 2 during 1988. Hook-and-line sampling and angler interviews provided data on species and size composition, catch rates, and fish condition. Lakes were also assessed for spawning potential, accessibility, and relative angler use.

Much of the data obtained on mountain lakes in Region 2 during 1988 was collected by conservation officers. Each officer who has lakes within his district was assigned a group of lakes to survey. Management dollars were used for horse rental to visit the lakes.

Additional catch data was provided by voluntary return of census forms which were distributed to anglers who made inquiries at the Regional Office regarding mountain lake fishing.

FINDINGS

Lake Surveys

Oregon Butte Lake

Oregon Butte Lake is located at the headwaters of the West Fork of Crooked Creek in the Salmon River drainage. The lake has been stocked with various strains of cutthroat trout at approximately three-year intervals. It was last stocked in 1987 with 1,000 westslope cutthroat trout fry. The August 30, 1988, survey revealed a high density of 12 to 17 in cutthroat trout in excellent condition. Smaller cutthroat trout, from 3 to 6 in, were also present. There is no spawning habitat available in the lake. Access is somewhat difficult and angler use is light. The current stocking regime should be maintained.

Middle Lake Creek Lake

The Three Lake Creek lakes are located in the Bargamin Creek drainage of the Salmon River. Stocking with rainbow trout has occurred on a three-year rotation. The middle lake was last stocked with 1,000 rainbow trout fry in 1987. The August 16, 1988, survey revealed a high density of 12 to 15 in rainbow trout in good condition. No spawning habitat is available. Angler use is rated as light. The current stocking regime should be maintained.

Upper Center Creek Lake

The Center Creek lakes are located in the Sabe Creek drainage of the Salmon River. Both have been stocked periodically with cutthroat and rainbow trout and were last stocked with 1,000 westslope cutthroat trout each in 1987. The August 17, 1988, survey of the upper lake revealed a high density of cutthroat trout ranging from fingerling to 18 inches. The fish were noted to be in excellent condition. Angler use was rated as light. The current stocking regime should be maintained.

Crystal Lake

Crystal Lake is located northeast of Buffalo Hump and has no apparent outlet. It has been stocked periodically with both rainbow and cutthroat trout and has a naturally reproducing population of brook trout. The August 31, 1988, survey revealed a high density of 6 to 8 in brook trout. No rainbow or cutthroat trout were sampled. Angler use was rated moderate. Since no reports of cutthroat or rainbow trout being caught from the lake have ever been received, stocking should be discontinued.

Sponge Lake

Sponge Lake is located at the headwaters of Sponge Creek in the Lochsa River drainage. It supports a naturally reproducing population of brook trout and is not stocked. The August 22, 1988, survey revealed a high density of 8 to 12 in brook trout. Angler use was rated as light.

Chimney Lake

Chimney Lake is located at the head of Chimney Creek in the Old Man Creek drainage of the Lochsa River. It supports a naturally reproducing population of brook trout and is not stocked. The September 1, 1988, survey revealed a high density of 7 to 9 in brook trout. Access is difficult and steep, and angler use was rated as light.

Fire Lake

Fire Lake is located at the head of Fire Creek in the Lochsa River drainage. It has been stocked periodically with rainbow trout fry and was last stocked in 1982. The August 15, 1988, survey indicated that the lake is shallow and turbid with no fish present. Stocking should be discontinued. '

Coolwater Lake

Coolwater Lake is located in the Fire Creek drainage of the Lochsa River. It has been stocked occasionally with rainbow and cutthroat trout and was last stocked with cutthroat trout in 1971. The lake also supports a naturally reproducing population of brook trout. The August 15, 1988, survey revealed a medium density of 9 to 10 in brook trout. Angler use was rated as light.

Flea Lake

Flea Lake is located in the Old Man Creek drainage of the Lochsa River. The lake had not been previously stocked because of insufficient data. The September 1, 1988, survey revealed that the lake is shallow and turbid and would be marginal fish habitat. Stocking should not be initiated.

Angler Census

Conservation officers interviewed anglers at ten mountain lakes in Region 2 during 1988. The 102 anglers checked had fished 227 hours to catch 164 trout for an overall catch rate of 0.72 fish per hour (Table 1). The catch consisted of 85.4% cutthroat trout and 14.6% rainbow trout.

Table 1. Summary of mountain lakes creel census in Region 2, 1988.

Body of water	Month	Anglers	Species caught			Hours	Fish/ hour	Fish/ angler
			RB	CT	BK			
Fish (Cedars)	Aug	73		113		154	0.7	1.5
Kelly, Upper	Sep	2				2	0.0	0.0
Kelly, Middle	Sep	2	2			2	1.0	1.0
Kelly, Lower	Sep	2		10		8	1.2	5.0
Hump	Sep	5	8			14	0.6	1.6
Deer	Sep	4		5		12	0.4	1.3
Round	Sep	3		3		9	0.3	0.3
Shining	Sep	2		2		6	0.3	1.0
Parachute	Jul	3	14	2		6	2.7	5.3
Wildhorse	Jul	6		5		14	0.4	0.8
Total		102	24	140		227		

Department personnel measured a total of 103 cutthroat trout from angler creels on opening weekend (August 1) at Fish Lake (Cedars area). These fish ranged from 152-330 mm (6.0-13.0 in) and averaged 294 mm (11.6 in). Table 2 provides a comparison of length frequencies of cutthroat trout caught from Fish Lake since 1973.

Table 2. Percent of cutthroat trout by 20 mm size groups taken from Fish Lake (Cedars Area), 1973a to 1988. (ND = no data)

Length (mm)	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
130-149	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
150-169	3.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.0
170-189	4.1	0.6	ND	2.2	ND	ND	NF	2.9	ND	0.6	ND	ND	ND	2.9	ND	1.0
190-209	4.6	2.6	0.4	ND	1.6	ND	1.5	3.2	0.5	ND	ND	ND	2.9	ND	ND	ND
210-229	5.2	6.5	2.8	2.2	4.1	ND	1.5	2.9	1.8	ND	1.4	ND	11.8	ND	ND	1.0
230-249	12.8	8.3	9.3	6.8	5.0	3.4	1.5	7.0	4.4	2.4	10.1	ND	11.8	5.2	ND	ND
250-269	14.0	7.7	6.9	4.5	8.3	4.6	10.8	10.2	12.0	7.1	13.0	16.1	8.8	8.6	ND	4.8
270-289	27.3	25.8	14.3	13.6	15.7	12.6	12.3	16.0	20.9	17.8	21.7	25.8	14.7	19.0	ND	22.3
290-309	18.6	33.6	31.5	34.1	23.1	32.2	27.7	25.1	27.4	46.1	36.2	45.2	20.6	44.8	ND	45.6
310-329	6.4	18.7	27.8	20.4	24.0	27.6	36.9	21.8	27.7	20.1	15.9	12.9	26.5	13.8	ND	18.4
330-349	2.3	7.2	6.5	15.9	16.5	17.2	4.6	9.0	4.7	5.9	1.7	ND	ND	8.6	ND	5.8
350-369	0.6	ND	0.5	ND	1.7	2.4	3.2	0.6	0.5	ND	ND	ND	ND	ND	ND	ND
Total number of cutthroat measured	172	155	216	44	121	87	65	412	383	169	69	31	34	58		103

JOB PERFORMANCE REPORT

State of: Idaho

Name: REGIONAL FISHERY MANAGEMENT INVESTIGATIONS

Project No.: F-71-R-13

Subproject No.: 2-b

Title: Region 2 Lowland Lakes and Reservoirs Investigations

Period Covered: July 1, 1988 to June 30, 1989

ABSTRACT

Census estimates on seven lowland lakes within Region 2 during 1988 revealed a total estimated angler effort of 166,636 hours with an estimated harvest of 142,267 trout. Winchester Lake led the way with an estimated 51,042 hours of effort (543 hrs/acre). Other estimates were: Spring Valley 39,735 hours (750 hrs/acre), Manns Lake 22,138 (184 hrs/acre), Moose Creek Reservoir 18,353 (262 hrs/acre), Soldiers Meadow Reservoir 14,104 (118 hrs/acre), Elk Creek Reservoir 10,840 (178 hrs/acre), and Waha Lake 10,424 (112 hrs/acre).

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OBJECTIVES

1. To estimate angler effort and fish harvested at Winchester, Spring Valley, Manns, Moose Creek, Soldiers Meadow, Elk Creek, and Waha lakes.

2. To evaluate contribution to the creel of holdover kamloops rainbow trout (adipose clipped) and Spokane-strain rainbow trout fingerling at Winchester, Spring Valley, Manns, and Soldiers Meadow.

RECOMMENDATIONS

1. Continue stocking Spokane-strain rainbow trout fingerlings and kamloops rainbow trout catchables in Winchester lake.

2. Continue stocking kamloops rainbow trout catchables in Soldiers Meadow Reservoir.

3. Discontinue stocking trout fingerlings in Spring Valley, Manns Lake, and Moose Creek Reservoir.

TECHNIQUES USED

Estimates of angler effort and harvest were obtained on Winchester, Spring Valley, Manns, Moose Creek, Soldiers Meadow, Elk Creek, and Waha lakes by conducting an expandable random stratified creel census. Angler counts and interviews were conducted on two weekdays and two weekend days per two-week census interval. The census was conducted from ice out (which varied between lakes) to October 31, 1988.

All lowland lakes in the Region were stocked with hatchery catchable rainbow trout from March through October. Spokane-strain fingerling rainbow trout (60 per pound) were stocked in Winchester and Manns lakes in May. Waha Lake was stocked with 30,268 early spawning kokanee fingerlings (128 per pound) on April 19, 1988 (Table 1).

Fisheries personnel used an electrofishing boat to sample fish populations at Manns Lake on June 28, Elk Creek Reservoir on October 3, Moose Creek Reservoir on September 21, Winchester on October 4, and Spring Valley on October 5, 1988.

Horizontal gill nets were set overnight at Campbells Pond on September 19, at Elk Creek Reservoir on October 3, at Tolo Lake on October 18, and at Grangeville Pond on October 18.

Two vertical gill nets (19 mm and 51 mm mesh size) were set overnight at Winchester Lake on August 18.

Table 1. Summary of fish releases in lowland lakes and ponds of Region 2, 1988.

Body of water	Date stocked	Species stocked	Number stocked	Pounds stocked	Fish/ pound
Winchester Lake	1/29	R4	10,500	3,000	3.5
	4/7	R4	10,000	4,000	2.5
	5/19	SSRB	49,935	851	60.0
	5/25	R4	10,000	3,600	2.8
	6/30	R4	5,008	1,565	3.2
	10/5	R1	15,120	5,400	2.8
	10/11	R9	2,700	1,000	2.7
Catchable subtotal			53,328	18,565	2.9
Fingerling subtotal			49,935	851	
Spring Valley Reservoir	3/28	R4	14,935	5,150	2.9
	5/6	R4	2,400	800	3.0
	5/24	R4	5,400	2,000	2.7
	6/10	R4	320	104	3.1
	6/30	R4	5,008	1,565	3.2
	10/5	R1	15,120	5,400	2.8
Catchable subtotal			43,183	15,019	2.9
Manns Lake	3/30	SSRB	5,520	2,300	1.4
	3/30	SSRB	49,920	832	60.0
	5/24	R4	10,000	3,030	3.3
	6/30	R4	5,008	1,565	3.2
	10/11	R9	15,680	5,600	2.7
Catchable subtotal			37,808	13,295	2.8
Fingerling subtotal			49,920	832	60.0
Soldiers Meadow Reservoir	5/25	R4	5,000	1,800	2.8
Moose Creek Reservoir	3/28	R4	5,003	1,725	2.9
	5/24	R4	2,430	900	2.7
	9/28	R1	5,000	1,800	2.8
Catchable subtotal			12,433	4,425	2.8
Waha Lake	4/7	R4	7,500	3,000	2.5
	4/19	KE	30,268	236	128.0
	5/24	R4	5,000	1,500	3.3
	9/27	R1	8,000	2,857	2.8
Catchable subtotal			20,500	7,357	2.8
Fingerling subtotal			30,268	236	128.0

Table 1. (Cont.)

Body of water	Date stocked	Species stocked	Number stocked	Pounds stocked	Fish/ pound
Blue Lake	6/7	R4	2,618	850	3.1
Elk Creek Reservoir	3/29	R4	7,000	2,121	3.3
	9/26	K1	5,220	1,800	2.9
Catchable subtotal			12,220	3,921	3.1
Dworshak Reservoir	5/31	RA	40,420	3,951	10.2
	5/31	RA	42,537	4,002	10.6
	6/2	RA	44,177	4,002	11.0
	6/2	RA	13,775	1,250	11.0
RV fin clipped subtotal			140,909	13,205	10.7
	6/2	R5	29,239	2,620	11.2
	6/6	R5	42,684	3,950	10.8
	6/6	R5	40,334	4,000	10.1
	6/8	R5	41,740	4,350	9.6
LV fin clipped subtotal			153,997	14,920	10.3
Fingerling subtotal			294,906	28,125	10.5
Robinson Pond	5/5	R4	525	175	3.0
	6/8	R4	1,078	350	3.1
	6/26	R4	506	220	2.3
Catchable subtotal			2,109	745	2.8
Lewiston Levee Ponds	4/19	R4	1,080	400	2.7
	6/10	R4	785	255	3.1
Catchable subtotal			1,865	655	2.8
Campbells Pond	5/5	R4	2,550	850	3.0
	6/8	R4	2,618	850	3.1
	9/26	K1	2,900	1,000	2.9
Catchable subtotal			8,068	2,700	3.0
Powell Pond	6/9	R4	523	170	3.1
Camp Grizzly Pond	6/29	R4	782	340	2.3
Five Mile Creek Pond	6/8	R4	523	170	3.1
Three Mile Creek Pond	6/18	R4	60	20	3.0

Table 1. (Cont.)

Body of water	Date stocked	Species stocked	Number stocked	Pounds stocked	Fish/ pound
Selway Pond	6/9	R4	523	170	3.1
MT. LASSEN (R4) CATCHABLE GRAND TOTAL			124,683	42,245	3.0
UNSPECIFIED RAINBOW (R1) GRAND TOTAL			43,240	15,457	2.8
HAYSPUR (R9) CATCHABLE GRAND TOTAL			18,380	6,600	2.8
DOMESTIC KAMLOOPS (K1) GRAND TOTAL			8,120	2,800	2.9
SPOKANE RAINBOW CATCHABLE GRAND TOTAL			7,120	3,100	2.3
ARLEE RAINBOW (RA) FINGERLING GRAND TOTAL			140,090	13,205	10.7
MT. SHASTA (R5) FINGERLING GRAND TOTAL			153,997	14,920	10.3
SPOKANE RAINBOW FINGERLING GRANT TOTAL			99,855	1,683	60.0
KOKANEE (KE) FRY GRAND TOTAL			30,268	236	128.0

FINDINGS

Lake and Reservoir Surveys

Winchester Lake

From March 12 through October 31, 1988, anglers fished an estimated 51,042 hours (543 hrs/acre) to harvest 40,329 hatchery rainbow trout (0.79 trout per hour) and 4,419 brown bullhead (0.88 total fish per hour). Shore anglers fished 45,684 hours to harvest 36,319 trout and 4,419 bullhead (Table 2). Boat anglers fished 5,358 hours to harvest 4,010 trout (Table 3).

Winchester Lake was open to year round fishing in 1988. Comparing like time frames of April 25 through October 31, anglers fished 38,895 hours at Winchester during 1988 compared to 44,587 hours during 1987 (Table 4).

The average 1988 weekend count at Winchester was 40.6 anglers compared to 36.5 in 1987. Weekday counts averaged 13.6 in 1988 compared to 14.5 in 1987. Boat anglers comprised 12.0% of those counted on weekends and 9.8% of those counted on weekdays during 1988. During 1987, these percentages were 9.9 and 9.6, respectively.

Table 2. Estimated shore angler effort and fish harvested at Winchester Lake, March 12-October 31, 1988.

Interval date	Number	Estimated hours fished	Species caught HRB	BB	Total
3/12-3/31	1	3,615	4,916	0	4,916
4/1-4/15	2	4,422	3,891	279	4,170
4/16-4/29	3	3,290	2,007	297	2,304
4/30-5/13	4	4,272	4,229	0	4,229
5/14-5/27	5	4,416	3,268	648	3,916
5/28-6/10	6	2,618	2,330	1,335	3,665
6/11-6/24	7	5,550	12,090	786	1,876
6/25-7/8	8	2,976	1,042	281	1,323
7/9-7/22	9	2,326	1,745	306	2,051
7/23-8/5	10	1,248	924	50	974
8/6-8/19	11	3,192	2,234	0	2,234
8/20-9/2	12	2,280	2,075	257	2,332
9/3-916	13	1,440	1,008	141	1,149
9/17-9/30	14	1,008	1,280	0	1,280
10/1-10/14	15	1,333	1,666	39	1,705
10/15-10/31	16	1,698	2,614	0	2,614
TOTAL		45,684	36,319	4,419	40,738

Table 3. Estimated boat angler effort and hatchery rainbow (HRB) harvested at Winchester Lake, March 12-October 31, 1988.

Interval date	Number	Estimated hours fished	Estimated HRB harvested
3/12-3/3	1	180	245
4/1-4/15	2	222	195
4/16-4/29	3	418	255
4/30-5/13	'4	664	657
5/14-5/27	5	984	728
5/28-65/10	6	348	310
6/11-6/24	7	496	96
6/25-7/8	8	540	189
7/9-7/22	9	456	342
7/23-8/5	10	0	0
8/6-8/19	11	312	218
8/20-9/2	12	288	262
9/3-9/16	13	264	185
9/17-9/30	14	0	0
10/1-10/14	15	66	82
10/5-10/31	16	120	246
TOTAL		5,358	4,010

Table 4. Comparison of estimated angler effort and fish harvested at Region 2 lowland lakes for 1987 and 1988.

Lake	Year	Interval	Estimated hours fished	Species caught			
				HRB	BB	LMB	BC
Winchester Lake	1987	4/25-10/31	44,587	32,887	16,810	0	0
	1988	4/30-10/31	38,895	28,820	3,843	0	0
		3/12-10/31	51,042	40,329	4,419	0	0
Spring Valley Reservoir	1987	4/25-10/31	39,834	45,597	0	1,667	0
	1988	4/30-10/31	32,667	30,555	0	226	0
		4/1-10/31	39,735	36,895	0	226	0
Manns Lake	1987	4/25-11/30	20,313	21,420	0	0	1,159
	1988	4/30-11/30	22,138	17,745	0	0	13,482
Soldiers Meadow Reservoir	1987	4/25-10/31	12,514	11,881	0	0	
	1988	4/30-10/31	14,104	11,182	0	0	0

Table 5 provides a breakdown by census interval of the four types of rainbow trout harvested at Winchester lake during 1988. Over the entire census period, the standard "hatchery catchable" contributed 80.4% of the trout caught, domestic kamloops made up 7.5%, 1987 Spokanes 3.6%, and 1988 Spokanes 8.5%. The adipose clipped domestic kamloops catchables, as well as the 1987 release of Spokane rainbow trout, had basically disappeared from the creel by late July. By mid-August, the 1988 release of Spokane rainbow trout had reached 230 mm (9 in) and were being kept by anglers. After August 6, these 1988 Spokanes contributed 5% of the trout harvested.

Only one of the reward-tagged fish which were stocked on April 22, 1987 was returned during 1988. It was caught on June 6, 1988.

On October 4, 1988, fisheries personnel used an electrofishing boat to sample 101 largemouth bass at Winchester. They ranged from 136-405 mm (5.4-16.0 in) and averaged 197 mm (7.7 in). Approximately 8.9% of the bass collected were greater than 305 mm (12 in).

Table 5. Estimated harvest of four "types" of rainbow trout harvested from Winchester Lake- during 1988.

Interval date -	"Generic" HRB	Ad Cl Domestic kamloops	1987 Spokane	1988 Spokane	Total HRB
3/12-3/31	4,268	893	0	0	5,161
4/1-4/15	3,604	458	24	0	4,086
4/16-4/29	1,857	238	167	0	2,262
4/30-5/13	3,679	576	631	0	4,886
5/14-5/27	3,616	128	252	0	3,996
5/28-6/10	2,223	277	140	0	2,640
6/11-6/24	977	174	35	0	1,186
6/25-7/8	1,094	39	98	0	1,231
7/9-7/22	1,862	161	64	0	2,087
7/23-8/5	924	0	0	0	924
8/6-8/19	2,057	88	44	263	2,452
8/20-9/2	1,540	0	0	797	2,337
9/3-9/16	1,080	0	0	113	1,193
9/17-9/30	757	0	0	523	1,280
10/1-10/14	1,231	0	0	517	1,748
10/15-10/31	1,687	0	0	1,173	2,860
TOTAL	32,456	3,032	1,455	3,386	40,329
Percentages	80.4	7.5	3.6	8.5	

Two vertical gill nets were set overnight in 25 feet of water at Winchester Lake on August 18, 1988. Mesh sizes were 19 mm (0.75 in) and 51 mm (2.0 in). A total of ten rainbow trout and one brown bullhead were caught in the 19 mm net. Only one brown bullhead was caught in the 51 mm net. All fish caught were between 2.4 and 3.7 m (8 and 12 feet) depth. This correlated well with dissolved oxygen and temperature profile data collected by the Division of Environment.

Spring Valley Reservoir

From April 1 through October 31, 1988, anglers fished an estimated 39,735 hours (750 hrs/acre) to harvest 36,895 hatchery rainbow trout and 226 largemouth bass for an overall catch rate of 0.93 fish per hour. Shore anglers fished 35,039 hours to harvest 33,303 hatchery rainbow trout and 170 largemouth bass (Table 6). Boat anglers fished 4,696 hours to catch 3,592 trout and 56 bass (Table 7).

Table 6. Estimated shore angler effort and fish harvested at Spring Valley Reservoir, April 1-October 31, 1988.

Interval date	Number	Estimated hours fished	Species caught HRB	LMB	Total
4/-4/15	1	4,188	3,728	0	3,728
4/16-4/29	2	1,982	1,804	0	1,804
4/30-5/27	3	6,792	5,298	0	5,298
5/28-6/10	4	4,356	4,444	35	4,479
6/11-6/24	5	4,032	2,701	0	2,701
6/25-7/8	6	3,144	1,321	44	1,365
7/9-7/22	7	1,272	675	0	675
7/23-8/5	8	756	250	91	341
8/6-8/19	9	1,764	2,258	0	2,258
8/20-9/2	10	1,392	941	0	941
9/3-9/16	11	852	1,022	0	1,022
9/17-9/30	12	1,456	1,572	0	1,572
10/1-10/14	13	1,302	2,526	0	2,526
10/15-10/31	14	1,751	4,763	0	4,763
TOTAL		35,039	33,303	170	33,473

Table 7. Estimated boat angler effort and fish harvested at Spring Valley Reservoir, April 1-October 31, 1988.

Interval date	Number	Estimated hours fished	Species caught HRB	LMB	Total
4/-4/15	1	432	385	0	385
4/16-4/29	2	466	423	0	423
4/30-5/27	3	1,224	955	0	955
5/28-6/10	4	384	392	3	395
6/11-6/24	5	252	169	0	169
6/25-7/8	6	712	299	10	309
7/9-7/22	7	228	120	0	120
7/23-8/5	8	360	119	43	162
8/6-8/19	9	0	0	0	0
8/20-9/2	10	120	80	0	80
9/3-9/16	11	90	108	0	108
9/17-9/30	12	336	363	0	363
10/1-10/14	13	92	179	0	179
10/15-10/31	14	0	0	0	0
TOTAL		4,696	3,592	56	3,648

As was the case with all other lowland lakes (except Manns), Spring Valley was open to year-round fishing for the first time in 1988. Comparing like time frames during 1987 and 1988 (April 25-October 31), we found that angler effort at Spring Valley decreased from 39,834 hours in 1987 to 32,667 hours in 1988 (Table 4) for this period.

The average 1988 weekend count at Spring Valley was 21.7 anglers compared to 48.4 in 1987. Weekday counts averaged 13.6 in 1988 compared to 14.4 in 1987. Boat anglers made up 11.91 of those counted on weekends and 10.7% on weekdays. During 1987, these. percentages were 13.8 and 7.8, respectively.

None of the reward tagged fish released into Spring Valley on April 22, 1987, were recovered during 1988.

On October 5, 1988, fisheries personnel used an electrofishing boat to collect 146 largemouth bass at Spring Valley. They ranged from 50-250 mm (2.0-9.8 in) and averaged 133 mm (5.2 in). Bass of any size may be harvested by anglers at Spring Valley.

Manns Lake

Manns Lake was the only lowland lake in Region 2 which was not open to year-round fishing during 1988. From April 30 to November 30, 1988, anglers fished an estimated 22,138 hours {184 hrs/acre) to harvest 17,796 hatchery rainbow trout and 13,638 black crappie (1.42 fish per hour). Shore anglers fished 18,987 hours to harvest 15,390 trout and 11,599 crappie (Table 8). Boat anglers fished 3,151 hours to harvest 2,378 trout and 2,036 crappie (Table 9). Comparatively, anglers fished an estimated 20,313 hours to harvest 21,420 trout and 1,159 crappie (1.11 fish per hour) during 1987 (Table 4).

Bass fishing was re-opened at Manns Lake in 1988 with a 12-inch minimum size requirement. No legal bass were checked in angler creels during 1988. However, an estimated 8,129 bass were caught and released (Table 10).

On June 28, 1988, fisheries personnel used an electrofishing boat to sample fish populations at Manns lake. We collected 18 largemouth bass and 24 black crappie. The bass ranged from 150-370 mm (5.9-14.6 in) and averaged 190 mm (7.5 in). Approximately 11.1% of the bass collected were larger than 305 mm (12 in). Bass less than 305 mm cannot be kept by anglers at Manns Lake. The crappie ranged from 135-205 mm (5.3-8.1 in) and averaged 187 mm (7.4 in).

Soldiers Meadow Reservoir

Although Soldiers Meadow Reservoir was open to year-round fishing during 1988, it remained ice covered until late April, and the census was not begun until April 30. From April 30 to October 31, 1988, anglers fished an estimated 14,104 hours (118 hrs/acre) to harvest 11,182 hatchery rainbow trout (0.79 per hour). Shore anglers fished 9,742 hours to harvest 7,806 hatchery rainbow trout (Table 11). Boat anglers fished 4,362 hours to catch 3,376 trout (Table 12). During the same time frame in 1987, anglers fished 12,514 hours to harvest 11,881 hatchery rainbow trout (0.95 trout per hour).

The adipose clipped catchable size (3.3 per pound) kamloops rainbow trout released into Soldiers Meadow Reservoir on September 25, 1987, held over very well and contributed 37.8% of the catch during 1988 (Table 13). These fish averaged 9 in when stocked and were averaging 11 to 12 in during July of 1988 with a very good condition factor.

Table 8. Estimated shore angler effort and fish harvested at Manns Lake, April 30-November 30, 1988.

Interval date	Number	Estimated hours fished	Species caught HRB	BCR	Total
4/30-5/13	1	6,852	5,619	3,700	9,319
5/14-5/26	2	3,048	1,646	2,286	3,932
5/28-6/10	3	2,054	2,033	2,958	4,991
6/11-6/24	4	1,248	749	524	1,273
6/26-7/8	5	1,236	927	247	1,174
7/9-7/22	6	784	415	525	940
7/23-8/5	7	294	168	0	168
8/6-8/19	8	720	302	1,166	1,468
8/20-9/2	9	624	562	193	755
9/3-9/16	10	280	280	0	280
9/17-9/30	11	282	257	0	257
10/1-10/14	12	455	592	0	592
10/15-10/31	13	810	1,198	0	1,198
11/1-11/30	14	300	642	0	642
TOTAL		18,987	15,390	11,599	26,989

Table 9. Estimated boat angler effort and fish harvested at Manns Lake, April 30-November 30, 1988

Interval date	Number	Estimated hours fished	Species caught HRB	BCR	Total
4/30-5/13	1	1,126	923	608	1,531
5/14-5/26	2	600	324	450	774
5/28-6/10	3	336	333	484	817
6/11-6/24	4	372	223	156	379
6/26-7/8	5	72	54	14	68
7/9-7/22	6	64	34	43	77
7/23-8/5	7	84	48	0	48
8/6-8/19	8	150	69	243	312
8/20-9/2	9	121	109	38	147
9/3-9/16	10	111	111	0	111
9/17-9/30	11	0	0	0	0
10/1-10/14	12	115	150	0	150
10/15-10/31	13	0	0	0	0
11/1-11/30	14	0	0	0	0
TOTAL		3,151	2,378	2,036	4,414

Table 10. Estimated angler effort and fish caught at Manns Lake, 1988

Interval dates	Estimated angler	HRB		BC		LMB		Totals	
		Fish/Hr	Harvest	Fish/Hr	Harves	Fish/Hr	Harvest	Fish/Hr	Total Caught
4/30-5/13	7,978	0.82	6,543	0.54	4,308	0.23	1,835	1.59	12,686
5/14-5/27	3,648	0.54	1,970	0.75	2,738	0.54	1,970	1.83	6,678
5/28-6/10	2,390	0.99	2,365	1.44	3,442	0.87	2,079	3.30	7,886
6/11-6/24	1,620	0.60	973	0.42	680	0.07	113	1.09	1,766
6/25-7/8	1,308	0.75	981	0.20	262	0.12	157	1.07	1,400
7/9-7/22	848	0.53	449	0.67	568	0.14	119	1.34	1,136
7/23-8/5	378	0.57	216	0.00	0	0.48	181	1.05	397
8/6-8/19	870	0.46	400	1.62	1,409	0.24	209	2.32	2,018
8/20-9/2	745	0.90	670	0.31	231	1.19	887	2.40	1,788
9/3-9/16	391	1.00	391	0.00	0	0.46	887	2.40	1,571
9/17-9/30	282	0.91	256	0.00	0	0.73	206	1.64	462
10/1-10/14	570	1.30	742	0.00	0	0.14	80	1.44	822
10/15-10/31	810	1.48	1,198	0.00	0	0.14	113	1.62	1,311
11/1-11/30	300	2.14	642	0.00	0	0.00	0	2.14	642
TOTAL	22,138	0.80	17,796	0.62	13,638	0.37	8,836	1.78	40,563

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Table 11. stimated shore angler effort and hatchery rainbow trout (HRB) harvest at Soldiers Meadow Reservoir, April 30-October 31, 1988.

Interval date	Number	Estimated hours fished	Estimated HRB harvested
4/30-5/27	1	2,160	1,382
5/28-6/10	2	984	1,181
6/11-6/24	3	1,198	1,354
6/25-7/8	4	1,884	1,601
7/9-7/22	5	912	502
7/23-8/5	6	840	453
8/6-8/19	7	0	0
8/20-9/2	8	400	304
9/3-9/16	9	492	438
9/17-9/30	10	252	315
10/1-10/14	11	280	140
10/15-10/31	12	340	136
TOTAL		9,742	7,806

Table 12. Estimated boat angler effort and hatchery rainbow trout (HRB) harvest at Soldiers Meadow Reservoir, April 30-October 31, 1988.

Interval date	Number	Estimated hours fished	Estimated HRB harvested
4/30-5/27	1	1,392	891
5/28-6/10	2	264	317
6/11-6/24	3	226	255
6/25-7/8	4	924	785
7/9-7/22	5	120	66
7/23-8/5	6	480	259
8/6-8/19	7	696	605
8/20-9/2	8	260	198
9/3-9/16	9	0	0
9/17-9/30	10	0	0
10/1-10/14	11	0	0
10/15-10/31	12	0	0
TOTAL		4,362	3,376

Table 13. Estimated harvest of two "types" of rainbow trout harvested from Soldiers Meadow Reservoir during 1988.

Interval date	"Generic" HRB	Ad Cl domestic kamloops	Total HRB
4/30-5/27	1,137	1,136	2,273
5/28-6/10	1,165	333	1,498
6/11-6/24	745	864	1,609
6/25-7/8	1,241	1,145	2,386
7/9-7/22	379	189	568
7/23-8/5	712	0	712
8/6-8/19	372	233	605
8/20-9/2	502	0	502
9/3-9/16	210	228	438
9/17-9/30	220	95	315
10/1-10/14	140	0	140
10/15-10/31	136	0	136
TOTAL	6,959	4,223	11,182
Percentages	62.2	37.8	

Of the 100 reward tagged hatchery rainbow trout released into Soldiers Meadow Reservoir on April 22, 1987, four were returned during 1988. These were caught on February 14, July 3, July 13, and August 15, 1988.

Moose Creek Reservoir

From April 1 through October 31, 1988, anglers fishing at Moose Creek Reservoir expended an estimated 18,353 hours (262 hrs/acre) of effort to harvest 14,895 hatchery rainbow trout. Shore anglers fished 14,124 hours to harvest 11,629 trout (Table 14). Boat anglers expended 4,229 hours of effort to catch 3,266 trout (Table 15).

On September 21, 1988, fisheries personnel used an electrofishing boat to sample fish populations at Moose Creek Reservoir. The 29 largemouth bass collected ranged from 76-440 mm (3.0-17.3 in) and averaged 183 mm (7.2 in). Bass greater than 305 mm (12 in) comprised 10.3% of the total sample. Other species collected were pumpkinseed, black crappie, bluegill, brown bullhead, hatchery rainbow trout, and largescale sucker.

Table 14. Estimated shore angler effort and hatchery rainbow trout (HRB) harvest at Moose Creek Reservoir, April 1-October 31, 1988.

Interval date	Number	Estimated hours fished	Estimated HRB harvested
4/2-4/25	1	1,092	1,933
4/16-4/29	2	756	945
4/30-5/27	3	3,504	2,278
5/28-6/24	4	4,056	2,596
6/25-7/22	5	2,630	1,762
7/23-8/19	6	615	283
8/20-9/30	7	333	193
10/1-10/31	8	1,138	1,639
TOTAL		14,124	11,629

Table 15. Estimated boat angler effort and hatchery rainbow trout (HRB) harvest at Moose Creek Reservoir, April 1-October 31, 1988.

Interval date	Number	Estimated hours fished	Estimated HRB harvested
4/1-4/15	1	492	871
4/16-4/29	2	0	0
4/30-5/27	3	1,440	936
5/28-6/24	4	960	614
6/25-7/22	5	1,003	672
7/23-8/19	6	168	77
8/20-9/30	7	166	96
10/1-10/31	8	0	0
TOTAL		4,229	3,266

Table 16 provides a breakdown by census interval of the percentage of anglers interviewed at Moose Creek Reservoir who stated that they were specifically fishing for bass. Effort for bass peaked in July and early August. Since no interviews were conducted after dark, some bass anglers could have been omitted; thus these percentages would be minimum estimates.

Table 16. Percentage of anglers interviewed at Moose Creek Reservoir who were specifically fishing for bass during 1988.

Interval date	Total anglers interviewed	Number fishing for bass	Percent fishing for bass
4/1-4/15	17	0	0.0
4/16-4/29	4	0	0.0
4/30-5/27	22	0	0.0
5/28-6/24	46	6	13.0
6/25-7/22	54	13	24.1
7/23-8/19	11	4	36.3
8/20-9/30	6	1	16.7
10/1-10/31	5	0	0.0
TOTAL	165	24	14.5

JOB PERFORMANCE REPORT

State of: Idaho **Name:** REGIONAL FISHERY MANAGEMENT INVESTIGATIONS

Project No.: F-71-R-13

Subproject No.: 2-c **Title:** Region 2 Rivers and Streams Investigations

Period Covered: July 1, 1988 to June 30, 1989

ABSTRACT

Department personnel interviewed a total of 324 anglers on ten different streams in Region 2 during 1988. The average catch rate was 1.17 fish per hour. Seventy-one percent of the anglers interviewed were Idaho residents.

During July of 1988, fisheries personnel snorkeled 27 transects in the Selway River between White Cap Creek and Race Creek. Cutthroat trout numbers declined to 17.1 per transect from a high of 21.5 per transect in 1986. Approximately 22% of the cutthroat trout observed in 1988 were estimated to be greater than 305 mm (12 in) in length.

Cutthroat trout numbers in the catch-and-release portion of the Lochsa River also declined in 1988 snorkel counts when compared to 1986. Percent of cutthroat trout estimated to be longer than 305 mm (12 in) remained the same at 29% in 1988, compared to 30% in 1986.

Snorkeling transects were established in the Little North Fork of the Clearwater River. Cutthroat trout densities were found to be very low when comparing them with Kelly Creek after the catch-and-release regulation was established in 1970.

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OBJECTIVES

1. To monitor the status of fish populations and sport fisheries on rivers and streams in Region 2.

2. To evaluate the current status of westslope cutthroat trout populations in the Lochsa, Selway, and Little North Fork of the Clearwater by snorkeling established transects.

3. To monitor parr densities of salmon and steelhead in selected Region 2 rivers and streams by snorkeling established transects.

RECOMMENDATIONS

1. Continue to collect fish density information in the Little North Fork of the Clearwater drainage above Larkins Creek.

2. Assess public attitudes about the condition of the fishery in the Little North Fork and their attitudes about further restrictions.

3. Increase enforcement contacts in the Little North Fork drainage.

TECHNIQUES USED

Transects snorkeled in the Lochsa and Selway were counted using one pass by one diver counting a previously established corridor of the river.

On August 19, 20, and 21, we snorkeled 33 transects from Minnesaka to Larkins Creek on the Little North Fork of the Clearwater River. With the assistance of Clearwater National Forest personnel we counted each transect using two or three divers. We swam upstream counting all fish and noted those under and over 30.0 cm.

With the exception of a reach below Foehl Creek, almost all of the available trout habitat was examined between Minnesaka and Larkins Creeks. Transects were the typical pool and/or run/glide bounded by a riffle on each end. Transects ranged in length from 15 to 75 m. Water conditions were low and clear. Temperatures ranged from 12 to 17°C.

Each transect was measured for area. Density estimates were made using fish numbers (by species) and area measured (m^2). Species observed included cutthroat, rainbow, bull trout, whitefish, suckers, and dace.

Selway River Investigations

Numbers of cutthroat trout counted in snorkel transects were lower in most sections of the Selway River during 1988 than in 1986. Overall, numbers decreased from 21.5 cutthroat trout per transect in

1986 to 17.1 per transect in 1988. Sections showing the largest decreases were from Running Creek to Bear Creek (19.2 to 11.6) and from Three Links Creek to Jim's Creek (.34.7 to 20.0) (Table 1). The percentage of cutthroat trout estimated to be over 305 mm (12 in) in snorkel transects increased upstream from Moose Creek and remained stable downstream from Moose Creek when comparing 1988 with 1986 (Table 2).

Department personnel caught, measured, and released 509 cutthroat trout from the Selway River between White Cap Creek and Race Creek in 1988. They ranged in total length from 100 to 415 mm (3.9-16.3 in) and averaged 248 mm (9.8 in). In 1988, 24.0% of the cutthroat trout caught were over 305 mm (12 in) compared to 31.7% in 1986 and 20.5% in 1984 (Table 3). Table 4 compares statistics for cutthroat trout counted in snorkel transects and caught by hook-and-line since 1973.

Counts of juvenile steelhead increased in most sections in 1988 when compared to 1986 but still remained lower than 1982 and 1984 counts (Table 5). As has been the case in every sample year, juvenile steelhead numbers downstream from Moose Creek were more than double the counts upstream.

As in past years, juvenile chinook numbers remained very low in mainstem Selway River transects. We counted a total of only 43 juvenile chinook in 27 transects. No adult chinook were counted in transects during 1988.

Whitefish numbers were down slightly in sections upstream from Moose Creek and up slightly in sections downstream from Moose Creek during 1988 (Table 6).

Lochsa River Cutthroat

As was the case in the Selway, cutthroat trout numbers in the catch-and-release portion of the Lochsa decreased from 1986 to 1988. In transects between Fish Creek and Lake Creek, cutthroat trout declined from 11.0 per 100 lineal meters in 1986 to 7.0 per 100 lineal meters in 1988. There was a similar decline in the upper Lochsa between Lake Creek and Crooked Fork Creek from 15.0 in 1986 to 12.0 in 1988 (Table 7).

In the catch-and-keep section of the Lochsa downstream from Fish Creek, cutthroat numbers increased from 0.75/100 in 1986 to 1.40/100 in 1988.

Little North Fork of the Clearwater

We found trout densities in the Little North Fork to be low. Densities of cutthroat averaged 0.37/100 m^2, rainbow-0.18/100 m^2, and bull trout-0.06/100 m^2. Whitefish densities averaged 1.46/100 m^2 (Table 8).

Table 1. Average number of cutthroat counted/snorkel transect in the Selway River (unroaded portion) from White Cap creek to Race Creek, 1973 to 1978, 1980, 1982,-1984, 1986, and 1988. (ND = no data)

Stream section	1973	1974	1975	1976	1977	1978	1980	1982	1984	1986	1988
White Cap Cr. to Running Cr.	4.2	3.4	6.8	7.2	10.8	7.4	13.2	11.2	11.0	15.2	13.3
Running Cr. to Bear Cr.	7.2	4.8	6.6	6.2	18.6	10.6	18.6	11.2	17.4	19.2	11.6
Bear Cr. to Moose Cr.	5.3	7.5	5.0	6.0	17.4	19.6	16.0	16.2	19.4	21.4	21.8
Weighted means: White Cap Cr. to Moose Cr.	5.6	5.2	6.1	6.5	15.4	12.5	16.2	12.8	16.3	18.8	15.7
Moose Cr. to Halfway Cr.	6.0	9.0	5.6	8.0	24.0	19.7	14.3	19.5	28.3	21.7	18.5
Halfway Cr. to Three Links Cr.	3.0	7.4	7.0	9.5	20.0	22.0	29.0	21.0	23.0	32.5	30.0
Three Links Cr: to Jim's Cr.	5.0	4.3	8.0	6.5	11.0	16.0	22.0	23.5	18.5	34.7	20.0
Jim's Cr. to Race Cr.	ND	2.5	1.2	5.7	7.5	3.5	12.3	18.0	14.0	14.5	14.8
Weighted means: Moose Cr. to Race Cr.	3.6	5.9	5.3	7.4	15.3	13.8	18.0	21.1	20.5	24.3	18.7

Table 2. Percent of cutthroat over 305 mm (12 in) counted in snorkel transects in the Selway River (unroaded portion) from White Cap Creek to Race Creek, 1973 to 1978, 1980, 1982, 1984, 1986, and 1988. (ND = No data)

	Percent over 305 mm (12 in)										
Stream section	1973	1974	1975	1976	1977	1978	1980	1982	1984	1986	1988
White Cap Cr. to Running Cr.	9.5	16.7	11.8	22.2	22.6	16.2	13.2	8.9	15.9	21.3	24.5
Running Cr. to Bear Cr.	11.1	8.3	18.2	16.2	21.5	20.8	11.8	10.7	20.7	14.6	22.4
Bear Cr. to Moose Cr.	34.4	15.5	8.0	25.0	25.0	21.4	9.9	15.0	22.7	18.7	22.9
Overall percent: White Cap Cr. to Moose Cr.	18.9	12.7	13.0	20.6	21.8	22.3	11.5	12.0	20.6	17.8	23.2
Moose Cr. to Halfway Cr.	8.3	ND	3.6	17.5	12.5	13.6	18.6	17.9	22.1	22.7	21.6
Halfway Cr. to Three Links Cr.	19.0	16.2	19.0	26.3	17.5	15.9	17.2	23.8	26.1	22.7	26.7
Three Links Cr. to Jim's Cr.	23.3	5.8	12.5	38.5	27.5	25.0	27.3	22.3	28.4	24.0	23.7
Jim's Cr. to Race Cr.	ND	10.0	50.0	11.8	26.5	35.7	4.1	11.1	30.4	15.5	13.6
Overall percent: Moose Cr. to Race Cr.	17.3	8.0	13.0	21.3	18.9	19.4	17.6	19.9	29.7	21.9	21.0

Table 3. Percent of cutthroat trout by 25.4 mm (1 in) size groups taken from the Selway River by angling, 1975 to 1978, 1980, 1982, 1984, 1986, and 1988.

Length (mm)	1975	1976	1977	1978	1980	1982	1984	1986	1988
102 to 126	1.8	ND	2.6	0.4	0.6	0.4	0.6	0.5	7.7
127 to 151	6.9	2.2	6.1	0.4	4.0	2.4	3.7	1.9	4.7
152 to 177	13.3	4.2	10.0	11.1	7.1	9.3	11.0	6.5	7.5
178 to 202	18.0	12.2	10.9	9.6	6.5	9.7	11.2	9.3	6.5
203 to 228	12.4	7.6	10.5	9.1	6.3	9.5	9.6	8.1	9.3
229 to 253	14.6	17.2	14.0	6.6	15.9	15.7	18.6	15.2	15.8
254 to 278	13.3	15.5	12.2	21.1	11.1	11.7	11.0	10.6	8.5
279 to 304	7.7	20.2	14.8	13.0	19.6	19.5	13.7	16.5	15.8
305 to 329	8.6	11.3	14.4	12.8	19.3	12.0	9.6	20.2	11.3
330 to 355	2.6	7.1	2.6	10.4	6.0	6.9	7.2	7.8	9.7
356 to 380	0.4	2.1	1.3	3.4	2.3	1.8	2.6	2.2	2.8
381 to 405	0.4	0.4	ND	1.7	1.1	0.5	1.2	0.9	0.2
Over 405	ND	ND	0.6	0.4	0.2	0.6	ND	0.3	0.2
Total # of cutthroat measured	233	238	229	470	352	549	429	322	506

Table 4. Comparison of cutthroat counted in snorkel transects and captured by angling in the Selway River between White Cap Creek and Race Creek, 1975 to 1978, 1980, 1982, 1984, 1985, and 1988.

	Counted in snorkel transects		Caught by angling		
Year	Average # of CT counted/ transect	% of CT >305 mm in transects	Total CT measured	Average CT total length (inches)	% of CT caught >305 mm
1988	17.1	22	506	9.8	24
1986	21.5	20	322	10.4	32
1984	18.3	23	429	9.8	21
1982	16.1	16	549	10.0	22
1980	17.0	14	352	10.4	29
1978	13.0	19	470	10.3	27
1977[a]	15.4	20	229	9.5	19
1976	7.1	21	238	10.2	22
1975	5.7	13	233	9.4	12
1974	5.5	10			
1973[a]	4.4	18			

[a]Extremely low flows

Table 5. Average number of juvenile steelhead counted/snorkel transect in the Selway River (unroaded portion) from White Cap Creek to Race Creek, 1973 to 1978, 1980, 1982, 1984, and 1986.

	Average number of juvenile steelhead/transect										
Stream section	1973	1974	1975	1976	1977	1978	1980	1982	1984	1986	1988
White Cap Cr. to Running Cr.	1.2	1.1	5.0	4.0	0.8	3.6	5.0	7.4	10.5	5.5	3.8
Running Cr. to Bear Cr.	2.2	3.2	7.0	2.2	2.0	0.8	3.4	6.0	14.4	3.8	4.4
Bear Cr. to Moose Cr.	4.3	3.7	11.0	13.0	3.3	3.4	9.0	19.8	17.2	11.8	18.2
Weighted means: White Cap Cr. to Moose Cr.	2.7	2.6	7.7	5.7	1.9	2.6	5.9	11.1	14.3	7.1	9.1
Moose Cr. to Halfway Cr.	27.5	17.8	17.8	13.2	5.3	22.0	9.7	40.3	43.8	23.7	22.5
Halfway Cr. to Three Links Cr.	14.0	17.4	25.3	19.5	9.5	12.0	19.0	28.0	31.0	21.0	35.0
Three Links Cr. to Jim's Cr.	19.3	8.8	32.5	23.5	24.7	18.7	18.9	24.2	26.7	28.7	31.8
Jim's Cr. to Race Cr.	1.8	6.2	6.7	4.3	10.5	5.8	**9.8**	10.0	13.0	15.0	12.3
Weighted means: Moose Cr. to Race Cr.	15.8	12.8	19.2	13.8	12.0	14.9	13.5	29.6	28.1	21.6	23.2

Table 6. Average number of whitefish counted/snorkel transect in the Selway River (unroaded portion) from White Cap Creek to Race Creek, 1973 to 1978, 1980, 1982, 1984, 1986, and 1988.

	Average number of whitefish/transect										
Stream section	1973	1974	1975	1976	1977	1978	1980	1982	1984	1986	1988
White Cap Cr. to Running Cr.	35.2	31.1	8.4	17.8	32.8	9.4	15.8	18.8	23.2	22.2	17.3
Running Cr. to Bear Cr.	39.2	36.4	15.0	6.5	77.8	17.4	17.6	21.2	37.4	30.6	24.2
Bear Cr. to Moose Cr.	31.1	34.2	11.8	9.0	51.3	16.6	19.0	30.2	44.2	31.6	29.6
Weighted means: White Cap Cr. to Moose Cr.	34.9	33.9	11.7	10.9	44.9	12.1	17.6	23.4	35.8	28.6	24.1
Moose Cr. to Halfway Cr.	48.8	31.5	32.4	16.6	69.5	40.3	32.0	43.8	46.2	41.0	44.7
Halfway Cr. to Three Links Cr.	17.7	31.4	27.0	16.0	65.0	67.0	27.0	47.0	60.0	38.5	70.0
Three Links Cr. to Jim's Cr.	23.8	19.0	41.0	19.5	49.7	46.0	38.3	59.0	50.0	50.7	35.0
Jim's Cr. to Race Cr.	5.2	16.8	18.7	2.0	41.0	20.5	20.0	21.0	32.5	19.7	22.3
Weighted means: Moose Cr. to Race Cr.	23.0	215.1	29.3	13.3	50.4	39.6	28.8	47.9	44.2	35.9	36.8

Table 7. Densities of salmonids (fish/100 m) in snorkel sections in the Lochsa River, 1975 to 1988 (Graham 1977) (Mabbott 1978 and 1979).

Stream section	Year	RB	Juvenile SH		Trout fry	Juvenile chinook	CT
			Age-1	Age-2 & up			
Mouth of Lochsa R. to Fish Cr.	1975	0.37	0.00	0.96	0.74	0.12	0.00
	1976	0.04	0.00	0.29	0.02	0.33	0.16
	1977	4.23	0.15	0.38	0.00	0.64	0.08
	1978	2.56	0.11	0.51	0.29	1.53	0.11
	1979	4.28	0.38	0.38	0.00	0.13	0.13
	1980	0.66	0.66	1.00	0.00	0.00	0.33
	1981	11.00	1.00	4.50	0.00	4.50	0.50
	1983	2.33	0.33	1.00	0.00	0.33	2.33
	1986	2.50	0.50	2.00	0.00	0.50	0.75
	1988	0.20	1.00	0.40	0.00	1.00	1.40
Fish Cr. to Lake Cr.	1975	2.50	2.92	9.73	7.32	0.99	0.00
	1976	2.70	0.11	5.45	3.25	2.69	0.07
	1977	7.60	0.70	2.90	0.35	0.70	0.08
	1978	4.46	2.12	5.12	12.58	6.58	6.58
	1979	1.75	1.86	2.27	7.64	1.55	0.41
	1980	11.0	0.33	2.00	0.00	0.00	5.00
	1981	10.25	1.50	3.50	1.75	21.75	3.75
	1983	8.80	4.00	14.00	0.00	0.80	11.60
	1986	14.33	5.00	13.00	0.00	3.33	11.00
	1988	0.50	0.00	10.50	0.00	18.50	7.00
Lake Cr. to Crooked Fork Cr.	1975	1.14	2.22	2.54	0.16	1.78	0.00
	1976	3.72	0.23	3.92	0.00	3.55	0.00
	1977	0.00	2.14	4.28	2.14	2.80	1.15
	1978	0.00	2.37	5.84	3.47	35.38	2.20
	1979	0.68	2.70	4.05	1.69	0.68	3.04
	1980	0.00	2.66	5.33	0.00	0.00	8.00
	1981	0.00	4.33	6.67	1.67	10.00	6.67
	1983	0.00	0.00	2.00	0.00	0.00	9.00
	1986	0.00	0.00	1.50	0.00	0.00	15.00
	1988	0.00	0.50	3.00	0.00	0.00	12.00
Overall	1975	1.34	1.71	4.41	2.74	0.96	0.00
	1976	2.15	0.11	3.21	1.09	2.16	0.08
	1977	2.60	0.60	2.00	0.38	0.89	0.19
	1978	2.89	1.20	3.02	5.33	8.49	0.82
	1979	2.61	1.40	1.80	3.82	0.87	0.68
	1980	4.67	0.93	2.27	0.00	0.00	3.73
	1981	7.00	2.33	4.77	1.33	14.00	4.00
	1983	3.86	1.47	5.60	0.00	0.40	7.20
	1986	7.10	1.89	4.33	0.00	1.33	8.67
	1988	0.22	0.66	3.22	0.00	4.66	5.00

Table 8. Fish densities measured in the Little North Fork of the Clearwater River during August 1988.

Stream reach	Species	Fish/100 M2 <30.0 cm	>30.0 cm	Total	Fish/transect
Minnesaka Cr. to Bear Cr. (10 transects)	Cutthroat	.07	0.11	0.18	1.6
	Rainbow	0.21	0.01	0.22	2.0
	Bull trout			0.02	0.2
	Whitefish			1.30	11.9
Bear Cr. to Foehl Cr. (12 transects)	Cutthroat	0.11	0.21	0.32	2.20
	Rainbow	0.07	0.00	0.07	0.50
	Bull trout			0.05	0.33
	Whitefish			1.67	11.30
Foehl Cr. to Larkins Cr. (11 transects)	Cutthroat	0.40	0.26	0.66	4.40
	Rainbow	0.24	0.03	0.27	1.73
	Bull trout			0.11	0.73
	Whitefish			1.41	9.3
Totals (33 transects)	Cutthroat			0.37	2.7
	Rainbow			0.18	1.4
	Bull trout			0.06	0.42
	Whitefish			1.46	10.80

Cutthroat trout densities increased as we counted upstream. They ranged from 0.18/100 m^2 in the reach from Minnesaka to Bear Creek to 0.66 from Foehl to Larkins Creek. The density of cutthroat over 30.0 cm for the same reach ranged from 0.11 to 0.26/100 m^2 (Table 8).

Fish abundance tended to be higher the further the stream was from the trail. Trout were very scarce just upstream and downstream of Bear Creek. Bear Creek is the location of Clearwater Outfitter's camp.

We found considerable evidence of angler use throughout most of the reach snorkeled. Despite the difficult access to the river, there was scatterings of campsites and fishing tackle mostly below Foehl Creek. The trail leaves the river above Foehl Creek.

It would appear that the three-trout limit has done little to maintain cutthroat trout populations in the Little North Fork. Compliance with fish regulations may be a problem. The remoteness of the area, coupled with lack of enforcement, may encourage users to exceed the bag limits. Increased fishing pressure in the last five years from clients using Clearwater Outfitters has likely contributed to the demise of the trout populations.

The catch-and-release regulation on Kelly Creek was established in 1970. Post snorkeling data in the lower roaded reach of Kelly Creek yielded cutthroat trout densities of 7 fish/transect compared to 2.7 in the Little North Fork. In the unroaded reach of upper Kelly Creek, densities exceeded 20 cutthroat/transect. Forest Service data collected in upper Cayuse Creek in the early 1980s describes densities of cutthroat from 1.5 to 7.3/100 m^2 compared to 0.18 to 0.66/100 m^2 in the Little North Fork.

Lower Kelly Creek prior to the catch-and-release regulation yielded cutthroat trout densities of 0.3/transect compared to 2.7 in the Little North Fork. The Little North Fork would likely respond very well to a regulation such as catch-and-release only if non-compliance was not significant. Whatever regulation is in effect in the Little North Fork will require more intensive enforcement in the future.

Juvenile Salmon and Steelhead Monitoring

Considerable time was again spent during the 1988 field season snorkeling selected streams in order to monitor densities of juvenile chinook salmon and steelhead trout. These data are summarized in a separate report.

Regional River and Stream Creel Census

Department personnel interviewed a total of 324 anglers on ten different streams in Region 2 during 1988. They had fished 935 hours to catch 1,094 fish for an overall catch rate of 1.17 fish per hour. Seventy-one percent of the anglers interviewed were Idaho residents (Tables 9 and 10).

Table 9. Catch statistics for resident fish species checked from angler creels on Region 2 streams, 1988.

Stream	Anglers Res.	Anglers NR	Hours fished	Total fish caught	Fish/ hour
South Fork Clearwater	20	4	30	33	1.10
Red River	3	0	6	8	1.33
Newsome Creek	17	0	20	29	1.45
Crooked River	8	0	10	9	0.90
Subtotal	48	4	66	79	1.20
Selway River					
Upstream from Meadow Creek (C-R)	7	0	170	679	3.99
North Fork Clearwater					
Upstream from Dworshak Reservoir	80	2	148	55	0.37
Beaver Creek	1	0	1	3	3.00
Orogrande Creek	9	7	16	21	1.31
Subtotal	90	9	165	79	0.48
Clearwater River	9	0	34	1	0.03
Snake River	77	80	500	256	0.51
Totals	231	93	935	1094	1.17

Table 10. Species composition of fish checked in anglers' creels on Region 2 streams, 1988.

Body of water	Percent of catch by species								
	WRB	HRB	SH	CT	BK	DB	WF	SMB	CC
South Fork Clearwater	24.2	3.1	69.7[s]	3.0					
Crooked River			44.5[s]	55.5					
Newsome Creek	48.3		51.7[s]						
Red River		100.0							
Selway River									
Upstream from Meadow Creek (C-R)	22.1			75.0			2.9		
North Fork Clearwater									
Upstream from Dworshak Reservoir	7.3			83.6		7.3	1.8		
Beaver Creek	67.0			33.0					
Orogrande Creek	67.0			28.6	4.4				
Clearwater River			100.0[a]						
Snake River		36.3	10.2[s]					47.7	5.

[s]smolt
[a]adult

JOB PERFORMANCE REPORT

State of: Idaho Project **Name: REGIONAL FISHERY MANAGEMENT INVESTIGATIONS**

No.: F-71-R-13

Subproject No.: 2-d **Title: Region 2 Technical Guidance**

Period Covered: July 1, 1988 to June 30, 1989

ABSTRACT

During 1988, Region 2 fishery management personnel provided private individuals, organizations, state, and federal agencies with written technical guidance and advice on projects associated with, or having impact on, the fishery resource or aquatic habitat in Region 2. Written comments were submitted on a total of 49 documents. In addition, farm pond owners were assisted in selecting and obtaining fish to be stocked into their ponds.

Author:

Ron Lindland
Regional Fishery Biologist

OBJECTIVES

To provide technical guidance to public agencies and individuals regarding stream alterations, timber sales, road construction, small hydro projects, private pond operations, or any other matters pertaining to fisheries in Region 2.

To assist local sportsmen's groups and individuals with habitat improvement projects that benefit fisheries.

RECOMMENDATIONS

Continue the technical guidance program to ensure professional and timely input regarding projects and programs that affect Region 2 fisheries.

TECHNIQUES USES

By personal contacts, field inspects, and project and document reviews, we gave comments and advice for projects or activities associated with, or impacting, the fishery resource or aquatic habitat of the Region.

FINDINGS

During 1988 Region 2 fishery management personnel submitted written comments on 49 documents from 7 separate state and federal agencies comprising 9Z of the 569 that received comment statewide. Table 1 categorizes these comments by agency.

Table 1. Summary of documents receiving written comments from Region 2 fishery management, 1988.

Agency	No. of document
U.S. Corps of Engineers	8
U.S. Forest Service	12
U.S. Environmental Protection Agency	3
Idaho Department o Lands	10
Idaho Department o Transportation	2
Idaho Department of Water Resources	9
Miscellaneous	5
TOTAL	49

APPENDICES

Appendix A. Creel census summary for lakes and reservoirs in Region 2, 1988.

Lakes and Reservoirs	Month	Anglers	Species harvested									Hours	Fish/ hour	Fish/ angler
			HRB	KOK	CT	BK	DV	B	BC	SB	LB			
Dworshak Reservoir	Mar	7	1									4	0.2	0.1
	Apr	14	7	38								61	0.7	3.2
	Jul	61	2	293						2		210	1.4	4.9
Winchester Lake	Jan	7	21									16	1.3	3.0
	Feb	9	33									24	1.4	3.7
	Mar	63	133									98	1.4	2.1
	Apr	151	238					22				302	0.9	1.7
	May	94	148					9				171	0.9	1.7
	Jun	219	128					49				370	0.5	0.8
	Jul	144	104					22				219	0.6	0.9
	Aug	87	104					5				135	0.8	1.3
	Sep	54	70								1	82	0.9	1.3
	Oct	55	152					2				112	1.4	2.8
Spring Valley Reservoir	Jan	64	187									116	1.6	2.9
	Mar	3	8									6	1.3	2.7
	Apr	95	154									171	0.9	1.6
	Mqay	48	55									71	0.8	1.1
	Jun	117	198								1	265	0.8	1.1
	Jul	66	52									122	0.4	0.8
	Aug	61	80									103	0.8	1.3
	Sep	29	75									66	1.1	2.6
	Oct	29	103									42	2.5	3.6
	Dec	9	16									27	0.6	1.8
Manns Lake	Apr	53	96					1	1			118	0.8	1.8
	May	82	113						62			153	1.3	2.1
	Jun	54	77						77			100	1.5	2.8
	Jul	55	27						33			59	1.0	1.1
	Aug	72	56						64			87	1.4	1.7
	Sep	18	29									30	1.0	1.6
	Oct	34	99									70	1.4	2.9
	Nov	4	15									7	2.1	3.7

Appendix A. (Cont.)

Lakes and Reservoirs	Month	Anglers	Species harvested									Hours	Fish/ hour	Fish/ angler
			HRB	KOK	CT	BK	DV	B	BC	SB	LB			
Moose Cr. Reservoir	Jan	6	7									2	3.5	1.2
	Feb	2	4									1	4.0	2.0
	Apr	30	78									62	1.3	2.6
	May	22	34									53	0.6	1.5
	Jun	67	79									126	0.6	1.2
	Jul	37	24									34	0.7	0.6
	Aug	10	3									6	0.5	0.3
	Sep	3	6									12	0.5	0.3
	Oct	5	13									10	1.3	.2.6
Elk Creek Reservoir	Feb	2	0									4	0.0	0.0
	Apr	24	49			14						72	0.9	2.6
	May	6	5									4	1.3	0.8
	Jun	24	13									11	1.2	0.5
	Jul	28	28									62	0.4	1.0
	Aug	20	9									23	0.4	0.5
	Sep	3	1					11				6	2.0	4.0
	Oct	2	4									6	0.7	2.0
Soldiers Meadow Reservoir	Jan	2	7									3	2.3	3.5
	May	34	60									70	0.9	1.8
	Jun	68	120									102	1.2	1.8
	Jul	70	72									121	0.6	1.0
	Aug	30	26									32	0.8	0.9
	Sep	15	35									36	1.0	2.3
	Oct	2	2									4	0.5	1.0
Waha Lake	Feb	7	9									8	1.1	1.3
	Mar	10	8									17	0.5	0.8
	Apr	38	99									72	1.4	2.6
	May	13	17									15	1.1	1.3
	Jun	4	6									8	0.7	1.5
	Jul'	8	25									12	2.1	3.1
	Aug	15	55									32	1.7	3.7
	Sep	6	4									4	1.0	0.7
	Oct	2	1									1	1.0	0.5

Appendix A. (Cont.)

Lakes and Reservoirs	Month	Anglers	Species harvested									Hours	Fish/ hour	Fish/ angler
			HRB	KOK	CT	BK	DV	B	BC	SB	LB			
Blue Lake	Jul	4	19									8	2.4	4.7
	Aug	8	18									15	1.2	2.2
	Sep	7	16									15	1.1	2.3
Five Mile Pond	Jun	31	15				1					44	0.8	1.2

Appendix B. Creel census summary for rivers and streams in Region 2, 1988.

Rivers and Streams	Month	Anglers		Species harvested									Hours	Fish/ hour	Fish/ angler
		Res.	NR	WRB	HRB	SH	CT	BK	DV	WF	SB	CC			
South Fork Clearwater	May	20	4	8	1	23[s]	1						30	1.1	1.4
Crooked River	Jun	8				4[s]	5						10	0.9	1.1
Newsome Creek	May	17		14		15[s]							20	1.5	1.7
Red River	Jul	3			8								6	1.3	2.7
Selway River															
Upstream from															
Meadow Creek (C-R)	Jul	7		150			509			20			170	4.0	97.0
North Fork Clearwater															
Upstream from															
Dworshak Reservoir	May	72		3			44		4	1			141	0.4	0.7
	Aug	8	2	1			2						7	0.4	0.3
Beaver Creek	Sep	1		2			1						1	3.0	3.0
Orogrande Creek	Jun	3	3				5	1					12	0.5	1.0
	Aug	6	4	14			1						4	3.8	1.5
Clearwater River	Mar	5				1[a]							26	0.04	0.2
	Apr	4											8	0.0	0.0
Snake River	Apr	24	15		40	25[s]					28		123	0.8	2.4
	Jun	8	22		18						7	15	42	0.9	1.3
	Aug	13	29		32						38		232	0.3	1.7
	Sep	32	14		3	1[a]					49		103	0.5	1.1

[a]adult
[s]smolt

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